CLAIMS

1. A DC Bus for use in a power module, comprising:

a positive DC conductor bus plate;

a negative DC conductor bus plate placed parallel to said positive bus;

one or more positive leads connected to said positive bus, wherein said positive leads are connectable to a positive terminal of a power source;

one or more negative leads connected to said negative bus, wherein said negative leads are connectable to a ground terminal;

one or more positive connections fastenable from said positive bus to the high side of a power module;

one or more negative connections fastenable from said negative bus to the low side of a power module;

wherein said positive bus and said negative bus permit counter-flow of currents thereby canceling magnetic fields and their associated inductances; and

wherein said positive bus and said negative bus are located between the high side and the low side of the power module.

2. The DC Bus of claim 1, having separate negative leads and separate positive leads for each half-bridge.

3. The DC Bus of claim 1, wherein each positive lead corresponds to and is located proximate to each high half-bridge in the power module, and each negative lead corresponds to and is located proximate to each low half-bridge in the power module.

4. The DC Bus of claim 3, wherein each positive lead is substantially central to the side of the corresponding high half bridge and each negative lead is substantially central to the side of the corresponding low half bridge.

5. The DC Bus of claim 1, further comprising:

an insulating layer in between said positive bus and said negative bus.

6. The DC Bus of claim 1 wherein each positive lead is substantially adjacent a negative lead.

7. The DC Bus of claim 1, wherein the positive bus and the negative bus are shaped to be connected substantially perpendicular to the substrate of the power module.

8. The DC Bus of claim 1, wherein the positive bus and the negative bus are shaped to be connected substantially parallel to the substrate of the power module.

9. A power module for reducing inductance, comprising:

a lead frame for supporting the module and for providing interconnections to the motor and power source;

a substrate connected to said lead frame;

one or more pairs of high and low switches at the substrate level of the module;

a positive DC bus plate connected to the center portion of the power module;

a negative DC conductor bus plate placed parallel to said positive bus;

one or more positive leads connected to said positive bus, wherein said positive leads are connectable to a positive terminal of a power source;

one or more negative leads connected to said negative bus, wherein said negative leads are connectable to ground;

one or more positive connections fastenable from said positive bus to the high side of a power module;

one or more negative connections fastenable from said negative bus to the low side of a power module;

wherein said positive bus and said negative bus permit counter-flow of currents thereby canceling magnetic fields and their associated inductances; and

wherein said positive bus and said negative bus are located between the high side and the low side of the power module.

10. The power module of claim 9, having separate negative leads and separate positive leads for each half-bridge.

11. The power module of claim 9, wherein each positive lead corresponds to and is located proximate to each high half-bridge in the power module, and each negative lead corresponds to and is located proximate to each low half-bridge in the power module.

12. The power module of claim 11, wherein each positive lead is substantially central to the side of the corresponding high half bridge and each negative lead is substantially central to the side of the corresponding low half bridge.

13. The power module of claim 9, further comprising:

an insulating layer in between said positive bus and said negative bus.

14. The power module of claim 1 wherein each positive lead is substantially adjacent a negative lead.

15. The power module of claim 9, wherein the positive bus and the negative bus are shaped to be connected substantially perpendicular to the substrate of the power module.

16. The power module of claim 9, wherein the positive bus and the negative bus are shaped to be connected substantially parallel to the substrate of the power module.

17. A method of reducing inductance in a power module comprising:

allowing DC current to flow symmetrically and directly to the switches of the module;

permiting counter-flow of electric currents, thereby canceling magnetic fields and their associated inductances; and

simultaneously positioning the positive and negative leads in close proximity to one another thereby canceling the magnetic fields and their associated inductance

18. The method of claim 17, further comprising:

mounting a DC positive bus plate and a DC negative bus plate parallel to one another between the high and the low side of the power module.

19. The method of claim 17, further comprising:

placing an insulating layer in between the positive bus and the negative bus.

20. The method of claim 17, further comprising:

providing separate power leads to each half-bridge of the power module.